

## **Notes regarding the 2005 April version of updated protocols**

### **A-1 Airway Management & Intubation Guidelines**

Strike and delete shows the changes

### **A-2 Adult Obstructed Airway**

Strike and delete shows the changes

### **A-3 Pediatric Airway Obstruction**

Strike and delete shows the changes

### **AC-13 Stable Ventricular Tachycardia**

Strike and delete shows the changes

### **AC-14 Unstable Ventricular Tachycardia**

Strike and delete shows the changes

### **T-1 Airway Management for the Trauma Patient**

Strike and delete shows the changes

### **B-6 EMT-B Reactive Airway Disease**

This protocol is new and replaces B-6 EMT-B Asthma (no strike and delete)

### **P-36 Combitube (Multilumen Airway)**

This protocol is new (no strike and delete)

# A-1 Airway Management & Intubation Guidelines

Designation of Condition: Paramedics should manage intubate patients who are apneic or severely hypoxic and/or bradypneic, with basic airway maneuvers and BVM. Those patients who are unresponsive to oxygen and basic airway maneuvers (jaw thrust, foreign body removal, BVM), should be intubated, either with Combitube or endotracheal tube. ~~Trauma arrest should be transported without delay and intubation attempted en route.~~

Field Treatment for endotracheal intubation:

## Pre-Medication

~~Lidocaine 1 mg/kg IV should be given prior to intubation in patients with suspected increased ICP (e.g. head trauma) and if the patient is not in shock.~~

Oral Intubation - Before intubation the patient should be preoxygenated with a BVM @ 100% O<sub>2</sub>. Cricothyroid pressure (Sellick's maneuver) should be applied to minimize gastric distention during BVM. Release pressure if patient is actively vomiting.

- Usual tube Size
- 7.05 - 8.0 mm for oral intubation of adults.
- 6.05 - 7.05 mm for nasal intubation of adults.
- Pediatrics- Refer to Braslow Tape
- ~~Cricothyroid pressure is encouraged unless a C-spine fracture is suspected.~~
- ~~Confirming tube placement.~~
  - Always auscultate both sides of chest and stomach.
  - Frequent reassessment of ETT placement during transport and after any move/transfer to confirm patency placement is mandatory.
  - Adjuncts for confirming tube placement
    - Place an end tidal CO<sub>2</sub> detector between the ETT and BVM on all patients with a pulse.
    - Consider using a toomey/suction tip syringe, aspirate the ETT, if 30cc of air can be drawn freely into the syringe, the tube is almost certainly in the trachea.
  - Prior to releasing intubated patient to receiving hospital, physician, or respiratory therapist, you must reconfirm tube placement & patency. ~~(continued)~~

Nasal Intubation **Nasal Intubation:** Nasal intubation has limited applications, and several drawbacks. It should be employed only when absolutely necessary, in patients with spontaneous respirations. It is contraindicated in combative patients, in the context of severe facial trauma, and in the presence of a known coagulopathy. It is strongly discouraged in cases of increased intracranial pressure, unless airway control is otherwise unobtainable.

- Nasal intubation should be preceded by nasal phenylephrine and xylocaine® jelly 2% if time permits.
- Do not force tube. Epistaxis (posterior and anterior) are common complications to this procedure.
- Guidable (Endotrol) tube is preferred. In most patients 6.0-7.0 tube size should be chosen.
- Preoxygenate with 100% O<sub>2</sub>.
- Choose most patent nostril. If no difference, use right nares.
- If patient becomes combative, cease attempt; as epistaxis and/or turbinate damage may ensue.
- Gently insert tube into nostril. The tube should be turned so that the bevel is away from the septum. Once the tip of the tube is past the inferior turbinate it should be directed caudad to follow the gentle downsloping floor of nose. Proceed very slowly and carefully. Once the nasopharynx is entered, restore tube to normal (sagittal) position.
- Advance tube until breath sounds maximal. Advance tube gently but firmly through cords during inspiration.

~~Nasal intubation should be preceded by nasal phenylephrine/xylocaine® jelly 2% (lidocaine™)/KY lubricating jelly if time permits.~~

~~Patient must have respiratory effort~~

~~Preferred route in conscious, cooperative adult~~

~~Acceptable if unable to orally intubate.~~

- ~~Guidable (Endotrol) tube is preferred.~~
- ~~Confirming tube placement. (See above)~~
- Always auscultate both sides of chest and stomach.
- ~~Frequent reassessment of ETT placement during transport and after any move/transfer to confirm patency is mandatory.~~
- ~~Adjuncts for confirming tube placement:~~
- ~~Place an end tidal CO2 detector between the ETT and BVM on all patients with a pulse.~~
- Consider using a toomey/suction tip syringe, aspirate the ETT, if 30cc of air can be drawn freely into the syringe, the tube is almost certainly in the trachea.

Post-Intubation Sedation to maintain ETT patency and maximize ventilation compliance.

- Should this need arise, use the following Diazepam dosing guidelines:
- Adult: Titrate to a total of 0.2 mg/kg not to exceed 5 mg/minute. Closely monitor blood pressure, SaO2 and ETCO2 . ~~If additional Diazepam is required, contact MCEP.~~
- Pediatric: Titrate to a total of 0.2 mg/kg SIVP not to exceed 1 mg/min. Closely monitor blood pressure, SaO2 and ETCO2. ~~If additional Diazepam is required, contact MCEP.~~
- ~~Prior to releasing intubated patient to receiving hospital, physician, or respiratory therapist, you must reconfirm tube placement & patency.~~

Combitube Placement:

- In certain situations, a Combitube may be the preferred method of airway control over endotracheal intubation, or used as a salvage device if intubation attempts are unsuccessful. ~~The Combitube may be used as an option. If employed, follow procedures as outlined in Combitube protocol/local training guidelines. (P-36 Refer to Bernalillo County System Training Guidelines)~~

Documentation: The run report should include patient mental and respiratory status, all procedures done, preoxygenation, ease of intubation, all medication given, cricothyroid pressure use, how tube placement was confirmed and maintained.

Example:

~~Patient was apneic and unresponsive upon arrival. Oral intubation with a #8 ET tube was easily performed by EMTP Dee after BVM ventilation with 100% O2. Cricothyroid pressure was applied by EMTP Jones. Patient vomited prior to our arrival, but suction was done and no vomitus was seen below the cords. Bilateral breath sounds were clear before and after intubation. The stomach was silent. Toomey syringe returned free flowing air from the ET tube. FEF changed color with each breath. Patency was confirmed upon transfer of patient to Dr. MCEP at UNMH by EMT P Dee.~~

MCB	Passed	Implemented	Revised	Revision #	Implemented
Action	4/20/94	06/01/94	07.08.2002	5	10/01/02

## A-2 Adult Obstructed Airway

Designation of Condition: Patient may present unable to speak, breathe or cough and may clutch his/her neck between the thumb and fingers. Movement of air will be absent in complete airway obstruction- a life threatening emergency.

### Field Treatment

- Establish level of responsiveness
- Determine history of witnessed or suspected aspiration

### Conscious Patient

Ask patient to speak; Ask if he is choking.

- Partial Obstruction
- If good air exchange, encourage the patient to cough as long as cough is persistent & effective and respiratory distress is minimal. Monitor closely, and transport ASAP.
- If Patient unable to speak or cough, or if poor air exchange, (e.g., ineffective cough, significant stridor, cyanosis) Treat like complete airway obstruction.
  - Perform sub-diaphragmatic abdominal thrusts (~~Heimlich maneuver~~) until obstruction is relieved or victim becomes unconscious. (Use chest thrusts in patients with marked obesity and during late stages of pregnancy)

### Unconscious Patient

- If event unwitnessed, Tap or gently shake shoulder, shout, "Are you o.k.?"
- Turn patient onto back as a unit, supporting head and neck. Patient should be face up with arms at side.
- Perform head-tilt/chin lift maneuver, if no trauma suspected. If trauma suspected, perform trauma jaw thrust. Maintain open airway. Look, listen, and feel for any signs of respiratory effort.
- Attempt to ventilate patient, if unable, reposition head and attempt to ventilate again.
- If unable to ventilate perform 5 sub diaphragmatic abdominal thrusts. ~~(Heimlich maneuver)~~
- Perform tongue-jaw lift and finger sweep.
- Attempt to ventilate
- If still unable to ventilate, perform direct laryngoscopy ~~visualization~~ and attempt to visualize and remove obstruction. Use Magill forceps, if indicated, to retrieve foreign body.
- Intubate if necessary.
- Ventilate with high flow oxygen ~~and BVM.~~
- If unable to visualize ~~obstruction or and~~ remove obstruction, and still unable to ventilate or intubate, and patient condition is deteriorating, perform cricothyrotomy.

Contact MCEP

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised	Revision #	Implemented
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## A-3 Pediatric Airway Obstruction

Designation of Condition: The infant/child may present with respiratory distress associated with coughing, wheezing, gagging or stridor. Movement of air will be absent in complete airway obstruction. This is a true life-threatening emergency.

Field Treatment:

Foreign Body

- Establish level of responsiveness.
- Determine history of witnessed or suspected aspiration: sudden onset of coughing, gagging, wheezing or stridor with respiratory difficulty.
- Consider epiglottitis or croup, and other infections as an etiology, and refer to that specific protocol.
- If partial obstruction, encourage the child to persist with coughing as long as cough is effective and respiratory distress is minimal. Give oxygen via blow-by as tolerated.

If conscious INFANT with obstruction, increasing respiratory difficulty, and ineffective cough:

- Deliver 5 back blows.
- Deliver 5 chest thrusts.
- Repeat sequence until foreign body is expelled or infant becomes unconscious.
- If conscious CHILD with obstruction, increasing respiratory difficulty, and unable to speak or cough:
- Perform Heimlich abdominal thrust maneuver.

If UNCONSCIOUS INFANT or CHILD

- Check for foreign body. If visible, remove with finger sweep (No blind sweep if not visible).
- Head tilt/chin lift.
- Attempt to ventilate.
- INFANT: Repeat back blows, chest thrusts, etc., repeat above steps until successful OR move to direct Laryngoscopy. CHILD: Repeat Heimlich maneuver and repeat above steps until successful or move to direct laryngoscopy.
- CHILD: Repeat abdominal thrust maneuver and repeat above steps until successful or move to direct laryngoscopy. INFANT: Repeat back blows, chest thrusts, etc., repeat above steps until successful OR move to direct Laryngoscopy.
- Direct Laryngoscopy should be done if unable to adequately ventilate. Use Magill forceps to retrieve foreign body, if it is visible.

Ventilate with high flow oxygen, enriched Oxygen and BVM, mouth to mouth, or mouth to mask.

Ventilate for gentle chest rise.

~~Direct Laryngoscopy should be done if unable to adequately ventilate. Use Magill forceps, if indicated, to retrieve foreign body.~~

- Intubate if necessary.

- Place an end tidal CO2 detector between the ETT and BVM on all patients with a pulse.

~~Ventilate with high flow oxygen, enriched Oxygen and BVM, mouth to mouth, or mouth to mask.~~

~~Ventilate for gentle chest rise.~~

- Contact MCEP

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 06/16/99	Revision # 1	Implemented 07/01/99
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## AC-13 Stable Ventricular Tachycardia

Designation of Condition: Sustained ventricular tachycardia (broad QRS tachycardia) will be present on the monitor. The patient will be conscious, alert, with a blood pressure greater than 90 mm Hg, free of chest pain, without shortness of breath, and is not diaphoretic.

Field Treatment:

- ABC's, oxygen, IV of NS, monitor. Apply defibrillation/cardioversion pads
- Lidocaine 1.0-1.5 mg/kg IV
- Rapid Transport
- Assess perfusion status at regular intervals. If patient condition deteriorates and becomes unstable: See AC-14.
- If Torsades de Pointes (For description, see AC-14) is present and the patient is hemodynamically stable, Administer Magnesium Sulfate 2 gms IV over 6 minutes (1 gm q 3 minutes) and initiate 30 mg/min infusion.
  - Monitor BP carefully and cease administration if hypotension ensues
  - If no change in rhythm after magnesium administration, contact MCEP
- Provide continuous ECG monitoring.

Contact MCEP

- ~~—Repeat Lidocaine 0.5 mg/kg every 5 minutes until a total dose of 3 mg/kg has been given over twenty minutes.~~
- ~~—If Lidocaine converts the arrhythmia to sinus rhythm, run Lidocaine drip at 2-4 mg/min or give Lidocaine 10-20 mg IVP every five minutes.~~
- ~~—The Lidocaine maintenance infusion should be reduced by one-half in patients over 70 years old and those with liver disease or heart failure.~~
- ~~—If loading dose of Lidocaine fails to convert the rhythm consult with MCEP for possible Magnesium Sulfate order:~~
- ~~—Magnesium Sulfate: 2gm bolus over 12 minutes (1 gm/6min) followed by a 30mg per minute infusion~~

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## AC-14 Unstable Ventricular Tachycardia

Designation of Condition: Sustained ventricular tachycardia (broad QRS tachycardia) will be present on the monitor. The patient will have a pulse. The patient will be hypotensive with decreased mental status, severe chest pain or significant SOB.

Field Treatment:

- ABC's, O2, IV of NS, monitor.
  - Sedate with Diazepam in 2-5 mg increments SIVP as appropriate up to a total dose of 0.2 mg/kg)
  - Monomorphic V-Tach
    - Synchronized Cardioversion \*\*\* @:
      - Standard 100 joules.
      - Zoll Biphasic 75 joules
  - If necessary proceed to:
    - Standard 200, 300, 360 joules as needed.
    - Zoll Biphasic 100, 120, 150, 200 joules as needed.
  - Polymorphic V-Tach
    - Synchronized Cardioversion \*\*\* @:
      - Standard 200 joules
      - Zoll Biphasic 100 joules
  - If necessary proceed to :
    - Standard 200, 300, 360 joules as needed.
    - Zoll Biphasic 100, 120, 150, 200 joules as needed.
  - Consider Lidocaine: 1.0-1.5 mg/kg bolus. Repeat 0.5 - 0.75 mg/kg every 5 minutes until arrhythmia resolved or 3 mg/kg have been given. If arrhythmia is successfully terminated, initiate appropriate maintenance infusion of 1-4 mg/min. NOTE\*\*\*The benefit of lidocaine is probably limited to V-Tach CAUSED BY cardiac ischemia. NOTE\*\*\*\* DO NOT ADMINISTER LIDOCAINE if you suspect hyperkalemia (e.g., renal failure patients on dialysis) or if the underlying rhythm is believed secondary to an overdose by an agent that blocks sodium channels (e.g., tricyclic antidepressants, phenothiazines, B-blockers, antihistamines, and cocaine).
  - Synchronized Cardioversion \*\*\* @ maximum joule setting after each bolus of Lidocaine (if given).
  - Consider Torsades de Pointes (A special form of polymorphic VT which displays a gradual alteration in the amplitude and direction of the electrical activity, so that it appears to rotate around an isoelectric line): Paramedics must understand that torsades is often due to various offending agents, such as tricyclic agents, phenothiazines, non-sedating antihistamines, and certain anti arrhythmic drugs. Although it can be suppressed by Magnesium sulfate, it will often recur unless the precipitating mechanisms are removed.):  
If Torsades de Pointes is present, and the patient is HEMODYNAMICALLY STABLE:  
—Administer Magnesium Sulfate 2gms IV over 6 minutes (1 gm q 3 minutes) and initiate 30mg/min infusion  
—If no change in rhythm, contact MCEP.
- If the patient with Torsades de Pointes is HEMODYNAMICALLY UNSTABLE:
- Synchronized Cardioversion (As outlined above for Polymorphic V-Tach)
  - Administer Magnesium Sulfate 2gms IV over 6 minutes (1 gm q 3 minutes) and initiate 30mg/min infusion

- If no change in rhythm, ~~repeat cardioversion. contact MCEP~~

\*\*\*Defibrillate if Synchronized Cardioversion is delayed

Remember to check pulses after delivering stacked defibrillation, wait for rhythm change before proceeding to next step. Frequently reassess breath sounds following intubation.

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# T-1 Airway Management for the Trauma Patient

Designation of Condition: The patient will be unable to adequately maintain an airway in the presence of trauma.

## Field Treatment

- Immobilize the cervical spine (axial immobilization). An airway may be maintained by utilizing the trauma jaw thrust or trauma chin lift. An oral or nasal airway may be utilized. Suction as necessary.
- If patient is not breathing adequately or is in respiratory arrest, and BVM ineffective, the neck should be stabilized with axial immobilization (in-line) and the trachea orally intubated without extension or flexion of the head. If the attempt at an axial immobilization oral intubation is not successful, consider: Combitube (See P-36) or surgical cricothyrotomy (See P-6).
- In the unresponsive breathing patient, consider nasotracheal intubation, unless contraindicated. (See A-1)
- ~~If the attempt at an axial immobilization oral intubation is not successful, consider:~~  
~~—Nasotracheal intubation, unless contraindicated.~~
- ~~Other invasive airway maneuvers: surgical cricothyrotomy.~~

## B-6 EMT-B Reactive Airway Disease

Designation of condition: Most commonly associated with asthma, COPD, bronchitis, and anaphylactic/allergic reactions. Caused by small airway obstruction usually secondary to hyperactive bronchial smooth muscle contraction (bronchospasm) and/or peribronchial inflammation. Common clinical findings include wheezing, tachypnea, and a prolonged expiratory phase. If airflow is severely compromised, wheezing may be absent and/or the patient may be hypoxic (O<sub>2</sub> sat < 90%).

Field Treatment: (All patients)

- Quickly assess ABC's
- Administer supplemental oxygen: Goal is to maintain O<sub>2</sub> sat > 90%.
- Allow patient to assume position that is most conducive to maximal airflow.
- Can assist ALS/ILS in their presence.
- If patient remains in respiratory distress and ALS/ILS are not available or have a delayed response time begin albuterol nebulizer.
  - Children < 2yrs of age = 2.5 mg in NS.
  - Adults & children > 2 yrs of age = 5mg in NS.
  - Transport ASAP if available.
  - If no transport available and/or ALS/ILS are not available, launch Rotary Air Ambulance.
- Monitor vital signs.
- Repeat albuterol up to 2 times..
- Manage airway as necessary with BVM or combitube.

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Action	02/16/00	02/16/00	12/22/04	1	04/01/05

## P-36 Combitube (Multilumen Airway)

### Designation of Condition:

- BLS – A primary airway device to secure a patent airway in the indicated patient population.
- ALS – A secondary airway device to be used after 2 attempts at normal intubation have failed or when intubation is not practical.

**Indications:** Patient is unconscious and unable to protect own airway, no apparent gag reflex.

- Use 37 F “Small Adult” device for patients 4 to 6 feet tall.
- Use 41 F “Large Adult” device for patients over 6 feet tall.

### Contraindications

- Responsive patients with an intact gag reflex.
- Patients with known esophageal disease.
- Patients who have ingested caustic substances.
- Known or suspected foreign body obstruction of the larynx or trachea.
- Patients under 4 feet in height.

### Insertion

- Prior to combitube insertion the patient should be preoxygenated with a BVM @ 100% O<sub>2</sub>. Cricothyroid pressure (Sellick’s maneuver) should be applied to minimize gastric distention during BVM..
- The recommended position for the patient’s head is in the neutral position.
- Lubricate the device with a water-based lubricant.
- In the supine patient, insert the thumb of a gloved hand into the patient’s mouth, grasping the tongue and lower jaw between the thumb and index finger, and lift upward.

**When facial trauma has resulted in sharp, broken teeth or dentures remove debris and exercise extreme caution when passing the Combitube into the mouth to prevent the cuff from tearing.**

- With the other hand, hold the Combitube with the curve in the same direction as the curve of the pharynx. Insert the tip into the mouth and advance along the true midline of the oropharynx. Advance carefully and gently until the printed ring is aligned with the teeth.  
**Caution: DO NOT FORCE THE COMBITUBE. If the tube does not advance easily, redirect it ( to true midline) and reinsert.** Have suction available and ready whenever withdrawing tube.
- If the Combitube is not successfully placed within 30 seconds, remove the device and ventilate and pre-oxygenate the patient for 30 seconds using basic methods, as described above, before re-attempting insertion.
- Once successfully inserted, inflate the large proximal (#1), blue pilot balloon leading to the pharyngeal cuff, with 85ml of air using the large (cc) syringe. (This may cause the Combitube to move slightly from the patient’s mouth). (If using the large adult device inflate with 100cc of air)
- Inflate the distal (#2), white pilot balloon leading to the distal cuff, with approximately 10ml of air using the small syringe. (15 cc for large device)
- Begin ventilation through the longer blue tube. Watch for chest rise. If auscultation of breath sounds is positive and auscultation of gastric air sounds is negative, continue ventilation. The presence of air entry into the lungs and absence of gastric insufflation indicates the Combitube is in the esophagus, which occurs virtually all the time. Place suction catheter through tube #2 and decompress the stomach.
- If no chest rise, negative lung sounds, and/or positive gastric air sounds with ventilation through the blue tube, then the Combitube is in the trachea, and begin ventilation through the shorter clear tube. Confirm ventilation with chest rise, presence of auscultated lung sounds, and absence of gastric air sounds.

- If the patient has a pulse utilize a colorimetric End-tidal Carbon Dioxide detector and observe for color changes.
- If there is no chest rise or positive lung sounds through either tube, remove the device, ventilate and pre-oxygenate the patient for 30 seconds as described above and repeat the insertion/inflation/ventilation procedures.
- After successful insertion, ventilate the patient through the tube that resulted in lung sounds using a BVM.
- REASSESS TUBE PLACEMENT FOLLOWING EVERY PATIENT MOVEMENT.

**Removal of Combitube:** At direction of Medical Control or when attempting reinsertion, or if the patient awakens. Remove Combitube as follows:

- Place the patient on side if practical
- Have suction ready
- Deflate blue tube
- Deflate white tube
- Remove Combitube
- Be prepared for vomiting

**Exchange of Combitube with endotracheal tube:** Some ED physicians are unfamiliar with the Combitube and may require your assistance to intubate around the Combitube. Always keep the inflation/deflation syringes with the device when you relinquish patient care.

1. Have suction ready
2. Deflate large pharyngeal balloon---blue tube.
3. Keep small distal cuff inflated---white tube (To help prevent regurgitation).
4. Insert ETT around Combitube and inflate cuff. Begin ventilations. Secure ETT.
5. Deflate small distal balloon (white tube) and remove Combitube from patient.

**NOTE ON SUCTIONING THROUGH THE COMBITUBE:** When suctioning the patient through the Combitube, **always** introduce the suction catheter through Tube #2 (white). Because the Combitube will usually be in the esophagus, most through-the-tube suctioning will be gastric suctioning and will result in decreased gastric distension. In the event that the Combitube is in the trachea, placement of the catheter into the white tube will result in tracheal suctioning.

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Action	12/15/04	12/01/04			04/01/05